## IN THE CLAIMS

Pursuant to 37 CFR §121(c), the claim listing, including the text of the claims, will serve to replace all prior versions of the claims, in the application.

Please cancel claims 5 and 16 without prejudice or disclaimer, and amend claims 1, 3, 10, 14, 15, 17 and 19 as follows:

1. (Currently Amended) An apparatus for operating and maintaining a private mobile communication service system using an internet protocol (IP) network, the private mobile communication service network having a private base station controller (pBSC) and a base station transceiver subsystem (BTS), said apparatus comprising:

a wireless system manager (WSM) for receiving operation/maintenance information from the pBSC through the IP network, processing the operation/maintenance information, creating an operation/maintenance control signal, and transmitting the operation/maintenance control signal to the pBSC through the IP network;

a hardware alarm collection unit mounted on the pBSC for collecting operation/maintenance information from at least one board and outputting the operation/maintenance information, and for receiving an operation/maintenance control signal from said at least one board and generating a reset signal for said at least one board; and

a base station controller main processor (BMP) responsive to the operation/maintenance information being received from the hardware alarm collection unit for ascertaining a link address and for transmitting the operation/maintenance information when the link address is the WSM, and responsive to the operation/maintenance control signal being received from the WSM ~~though~~ through the IP network for transmitting the operation/maintenance control signal to the hardware alarm ~~connecting~~ collection unit;

wherein the WSM comprises a maintenance function module for receiving the operation/maintenance information from the BMP, for providing a maintenance function including at least one of system status monitoring, system failure control and system tests, and for creating and outputting the operation/maintenance control signal; and

wherein the maintenance function module comprises:

a status manager for monitoring the status of processors of the system, various links and various devices;

a fault manager for collecting failures and alarms of the system, and for reporting them to an operator; and

a test manager for testing devices and processing test calls.

2. (Original) The apparatus as set forth in claim 1, wherein the IP network is a Fast Ethernet link.

3. (Currently Amended) The apparatus as set forth in claim 1, wherein the WSM further comprises:

an operation function module for receiving the operation information from the BMP, for providing operation functions including at least one of loading, configuration management and statistics measurement, and for creating and outputting the operation control signal; and

~~a maintenance function module for receiving the operation/maintenance information from the BMP, for providing a maintenance function including at least one of system status monitoring, system failure control and system tests, and for creating and outputting the operation/maintenance control signal; and~~

a general function module for receiving the operation/maintenance information from the BMP through the IP network, for outputting the operation information to the operation function module, for transmitting the maintenance information to the

maintenance function module, for receiving the operation/maintenance control signal from the operation module and the maintenance module, and for transmitting the operation/maintenance control signal to the BMP through the IP network.

4. (Original) The apparatus as set forth in claim 3, wherein the operation function module comprises:

a system loading manager for handling system loading;

a configuration data manager for handling configuration management; and

a statistics and measurement manager for handling a statistics and measurement function.

Claim 5. (Canceled)

6. (Original) The apparatus as set forth in claim 3, wherein the general function module comprises:

a WSM initialization manager for creating and managing application parts required for operation of the WSM;

a local area network (LAN) interface manager for processing a LAN connection, and data transmission and reception with the system; and

a user interface manager for proving a graphic user matching function.

7. (Original) The apparatus as set forth in claim 1, wherein the BMP comprises:

a local area network (LAN) interface for providing an interface with a LAN to allow an IP communication with the WSM;

an operation/maintenance information transmission unit responsive to the operation/maintenance information being received from the hardware alarm collection unit for ascertaining the link address, and for transmitting the operation/maintenance

information to the WSM through the LAN interface if the link address is the WSM; and

an operation/maintenance control signal transmission unit for receiving the operation/maintenance control signal from the WSM through the LAN interface, and for transmitting the operation/maintenance control signal to the hardware alarm collection unit.

8. (Original) The apparatus as set forth in claim 7, wherein the operation/maintenance information transmission unit comprises:

an operation/maintenance information receiving unit for receiving the operation/maintenance information from the hardware alarm collection unit; and

a link address ascertaining unit for ascertaining the link address of the operation/maintenance information received from the operation/maintenance information receiving unit, and for transmitting the operation/maintenance information to the WSM through the LAN interface if the link address is the WSM.

9. (Original) The apparatus as set forth in claim 7, wherein the operation/maintenance control signal transmission unit comprises:

an operation/maintenance control signal receiving unit for receiving the operation/maintenance control signal from the WSM through the LAN interface; and

an operation/maintenance control signal transmitting unit for transmitting the operation/maintenance control signal to the hardware alarm connecting unit.

10. (Currently Amended) A method of operating and maintaining a private mobile communication service system using an IP network, the private mobile communication service network having a pBSC and a base station transceiver system (BTS), said method comprising the steps of:

(a) ascertaining, at a base station main processor (BMP), a link address of

operation/ maintenance information of at least one board collected by a hardware alarm collection unit;

(b) when the link address is ascertained to be a wireless system manager (WSM), transmitting the operation/maintenance information to the WSM through the IP network and processing the operation/maintenance information at the WSM;

(c) creating an operation/maintenance control signal at the WSM and transmitting the operation/maintenance control signal to the BMP through the IP network; and

(d) transmitting, at the BMP, the operation/maintenance control signal to the hardware alarm collection unit, and creating and outputting, at the hardware alarm collection unit, a reset signal for said at least one board;

wherein step (b) comprises transmitting the operation/maintenance information to a maintenance function module of the WSM; and

wherein the method further comprises the steps of:

monitoring, at a status manager of the maintenance function module, the status of processors, various links and various devices;

at a fault manager of the maintenance function module, collecting failures and alarms and reporting them to an operator; and

at a test manager of the maintenance function module, testing devices and processing test calls.

11. (Original) The method as set forth in claim 10, wherein step (a) comprises:

collecting, at the hardware alarm collection unit, the operation/maintenance information of the board and transmitting the operation/maintenance information to the BMP; and

ascertaining, at the BMP, the link address of the operation/maintenance information.

12. (Original) The method as set forth in claim 10, wherein step (b) comprises:

when the link address is ascertained to be the WSM, transmitting, at the BMP, the operation/maintenance information to the WSM through the IP network;

receiving, at a general function module of the WSM, the operation/maintenance information through the IP network;

transmitting, at the general function module, the operation information to an operation function module to process the operation information; and

transmitting, at the general function module, the maintenance information to a maintenance module to process the maintenance information.

13. (Original) The method as set forth in claim 10, wherein step (d) comprises:

receiving, at the BMP, the operation/maintenance control signal through the IP network;

transmitting, at the BMP, the operation/maintenance control signal to the hardware alarm collection unit; and

creating and outputting, at the hardware alarm collection unit, the reset signal for the board.

14. (Currently Amended) In an apparatus for operating and maintaining a private mobile communication service system using an internet protocol (IP) network, the private mobile communication service network having a private base station controller (pBSC) and a base station transceiver subsystem (BTS); a wireless system manager (WSM) comprising:

operation function module means for receiving operation information, for providing operation functions including at least one of loading, configuration management and statistics measurement, and for creating and outputting an operation control signal;

maintenance function module means for receiving operation/maintenance information, for providing a maintenance function including at least one of system status monitoring, system failure control and system tests, and for creating and outputting an operation/maintenance control signal; and

general function module means for receiving the operation/maintenance information, for outputting operation information to the operation function module means, for transmitting maintenance information to the maintenance function module means, for receiving the operation control signal from the operation module means and the operation/maintenance control signal from the maintenance module means, and for transmitting the operation/maintenance control signal through the IP network;

wherein the maintenance function module means comprises:

a status manager for monitoring the status of processors of the system, various links and various devices;

a fault manager for collecting various failures and alarms of the system and reporting them to an operator; and

a test manager for testing various devices and processing test calls.

15. (Currently Amended) In the apparatus ~~as set forth in~~ of claim 14, wherein the operation function module means comprises:

a system loading manager for handling system loading;

a configuration data manager for handling configuration management; and

a statistics and measurement manager for handling a statistics and measurement function.

Claim 16. (Canceled)

17. (Currently Amended) In the apparatus ~~as set forth in~~ of claim 14, wherein the general function module comprises:

a WSM initialization manager for creating and managing application parts required for operation of the WSM;

a LAN interface manager for processing LAN connection and data transmission and reception with the system; and

a user interface manager for proving a graphic user matching function.

18. (Original) In the apparatus of claim 14, said apparatus further comprising a hardware alarm collection unit mounted on the pBSC for collecting the operation/maintenance information from at least one board and outputting the operation/ maintenance information, and for receiving the operation/maintenance control signal from said at least one board and generating a reset signal for said at least one board.

19. (Currently Amended) In the apparatus of claim 14, said apparatus further comprising a base station controller main processor (BMP) responsive to the operation/maintenance information being received for ascertaining a link address and for transmitting the operation/maintenance information when the link address is the WSM, and responsive to the operation/maintenance control signal being received from the WSM ~~though~~ through the IP network for transmitting the operation/maintenance control signal to a hardware alarm connecting unit.

20. (Original) In an apparatus for operating and maintaining a private mobile communication service system using an internet protocol (IP) network, the private mobile communication service network having a private base station controller (pBSC) and a

base station transceiver subsystem (BTS); a base station main controller main processor (BMP) comprising:

a local area network (LAN) interface for providing an interface with a LAN to allow an IP communication;

an operation/maintenance information transmission unit responsive to reception of operation/maintenance information for ascertaining a link address, and for transmitting the operation/maintenance information through the LAN interface when the link address is a certain address; and

an operation/maintenance control signal transmission unit for receiving an operation/maintenance control signal through the LAN interface, and for transmitting the operation/maintenance control signal to a hardware alarm collection unit.